

Fig. 1

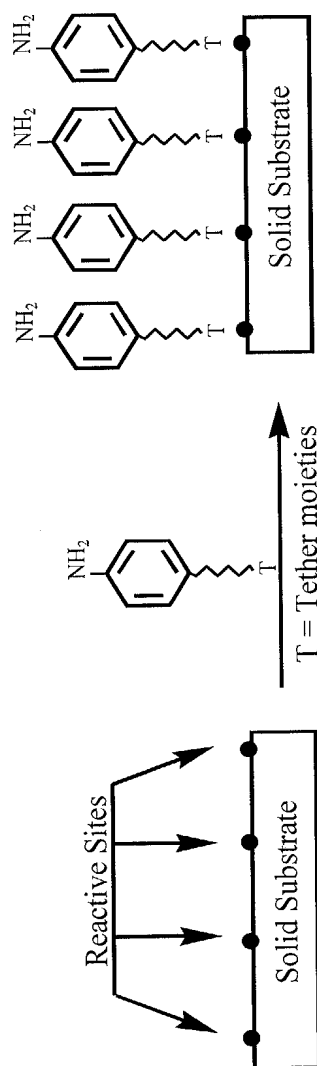


Figure 1. Immobilization of primary aromatic amines. Tether moieties include, but are not limited to, thiols ($-\text{SH}$) for immobilization to noble metal (Au, Ag, Cu) surfaces, and trialkoxy silanes or trichloro silanes for immobilization to oxide surfaces.

Fig. 2

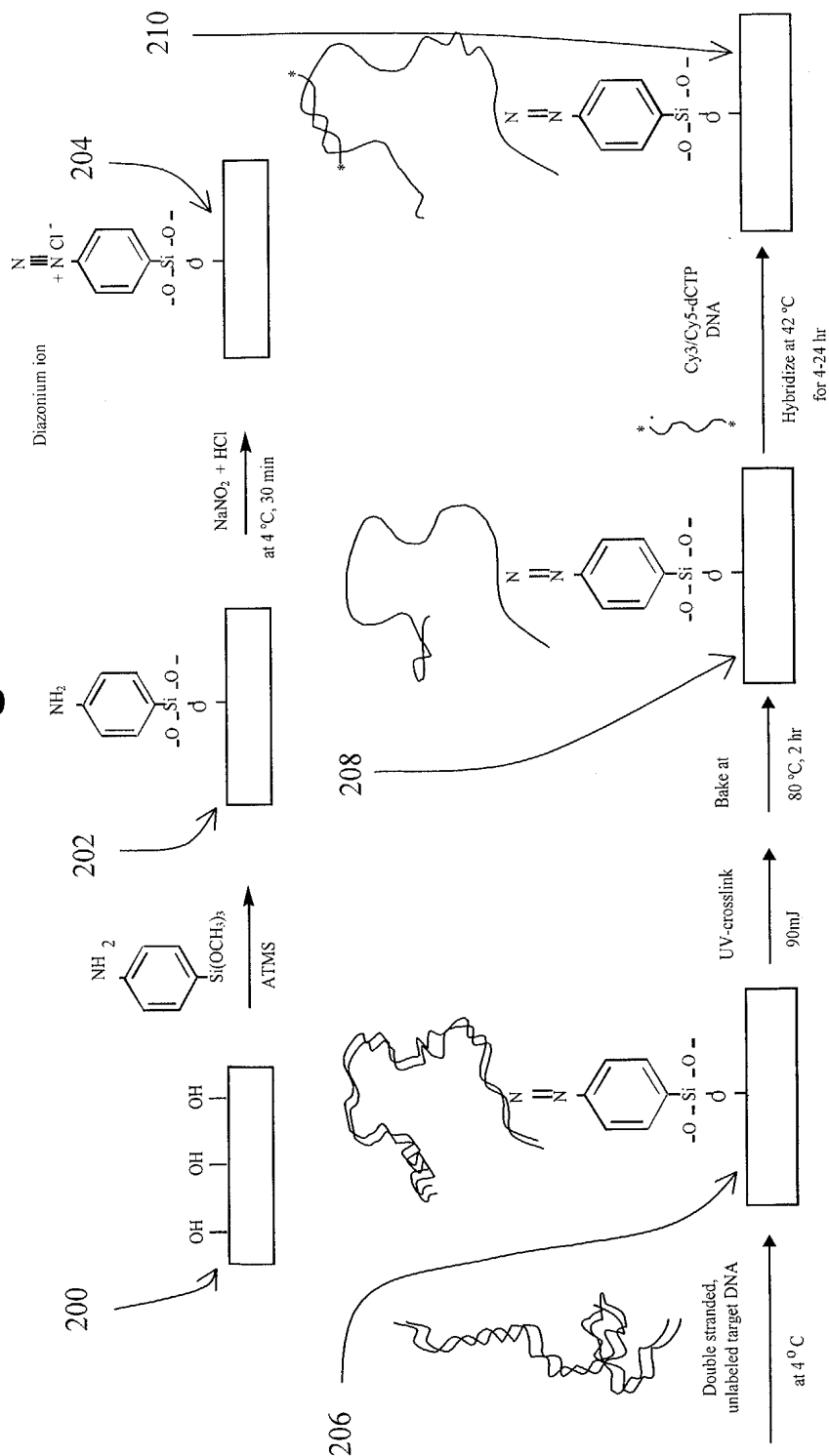


Figure 2. Schematic of primary aromatic amine/diazotization method for covalent immobilization of double-stranded target DNA on a glass surface and subsequent hybridization of probe DNA.

FIG. 4

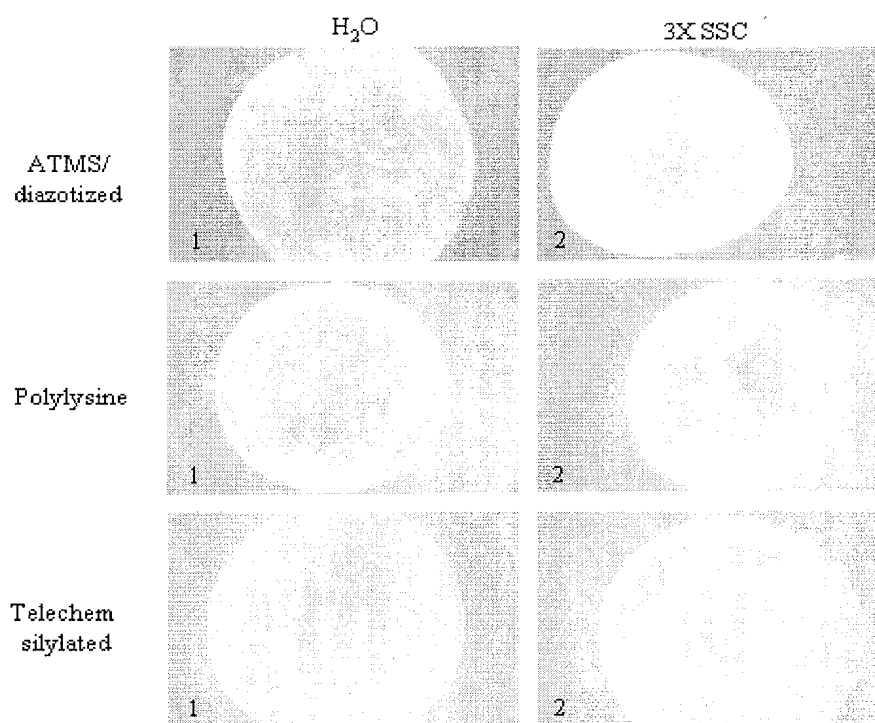


Figure 4. Image comparison of Cy3-labeled *am* DNA spotted onto ATMS/diazotized-treated, polylysine-coated and Telechem glass microscope slides. Cy3-labeled *am* DNA was diluted 1:10 with dd H₂O or 3X SSC before attachment (1: H₂O; 2: 3X SSC).

FIG. 5

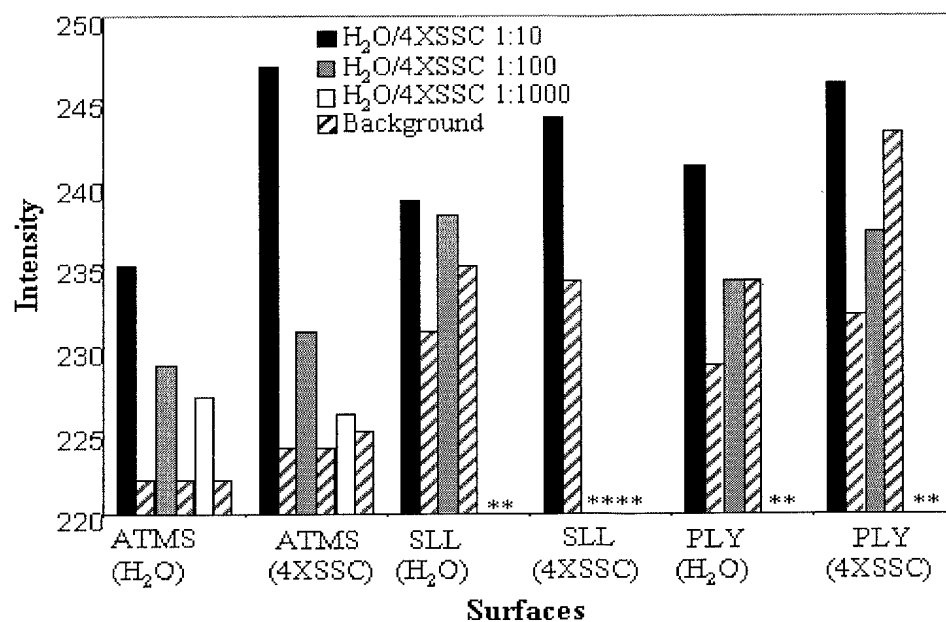


Figure 5. Intensity of Cy3-labeled *am* DNA spotted on ATMS/diazotized (ATMS), Polylysine (PLY) and TeleChem (TEL) surfaces. *: No measurable signal detected. [Note: Intensity was normalized to 255 (no units) representing the maximum white intensity, and will be used in all later figures.]

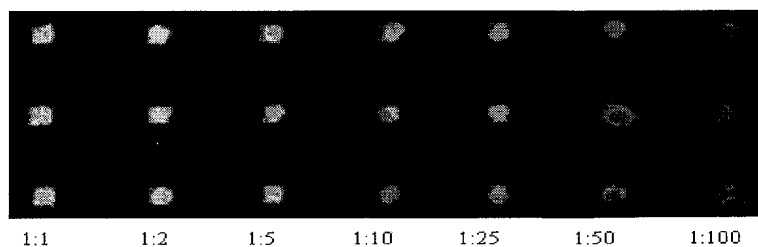
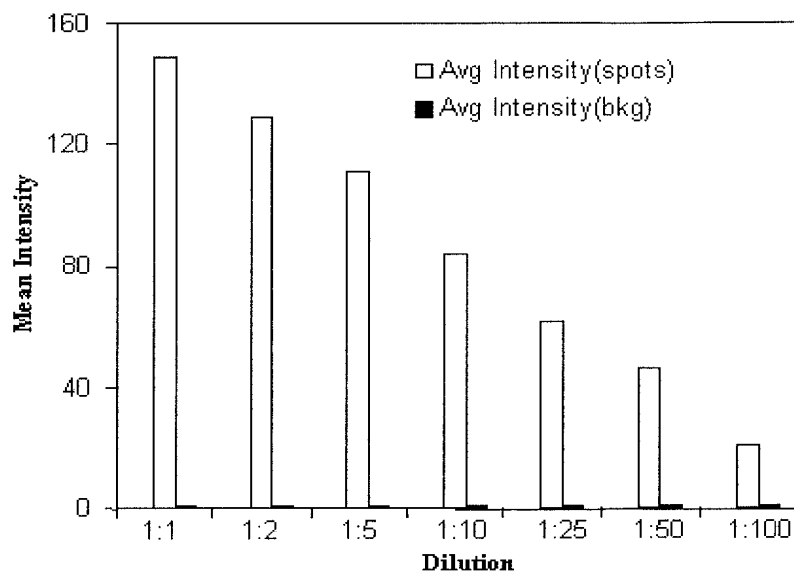
FIG. 6a**FIG. 6b**

Figure 6a. ATMS/diazotized glass slide arrayed with Cy5-labeled *am* DNA in dilutions (from left to right) of 1:1, 1:2, 1:5, 1:10, 1:25, 1:50 and 1:100 in 3X SSC (3 replicas of all dilutions). Each spot is approximately 100 mm in diameter.

Figure 6b. Average intensity of spots shown in **Figure 6a**. [Note: The slides in this and all later figures were scanned with ScanArray3000 and the spots were automatically pseudo-colored.]

FIG. 7

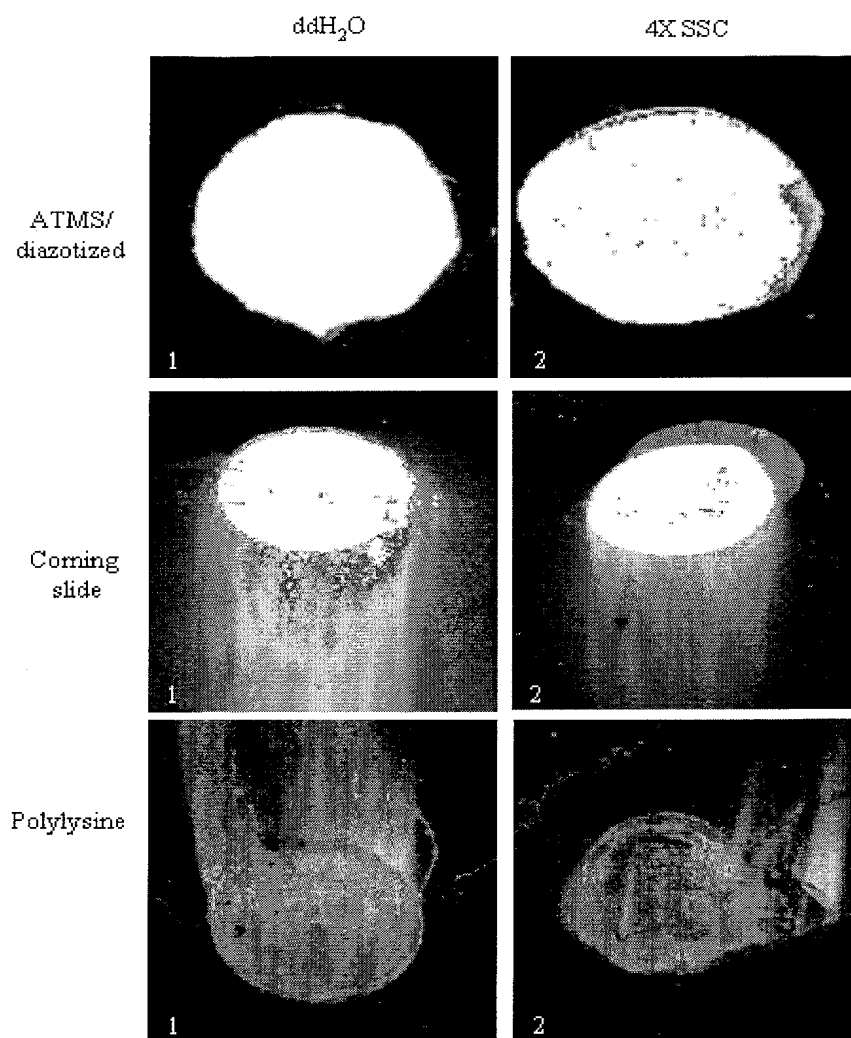


Figure 7. Image comparison of hybridization of Cy5-labeled *am* probe to 20ng of *am* target DNA in ddH₂O or 4X SSC buffer immobilized on ATMS/diazotized, Corning and polylysine glass microscope slides (1: ddH₂O; 2: 4X SSC). Diameter of all spots was approximately 2mm in diameter the images on Corning and polylysine slides are shown at lower magnification to portray the “comet tails” and “shadows” around the spots.

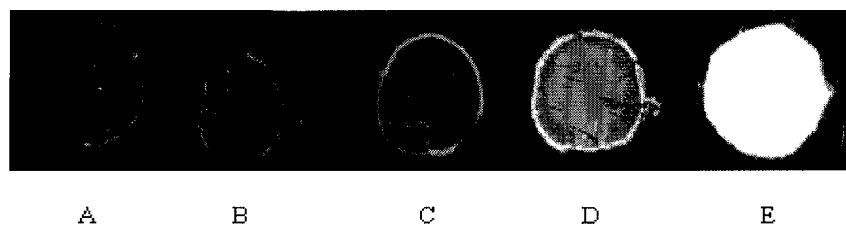
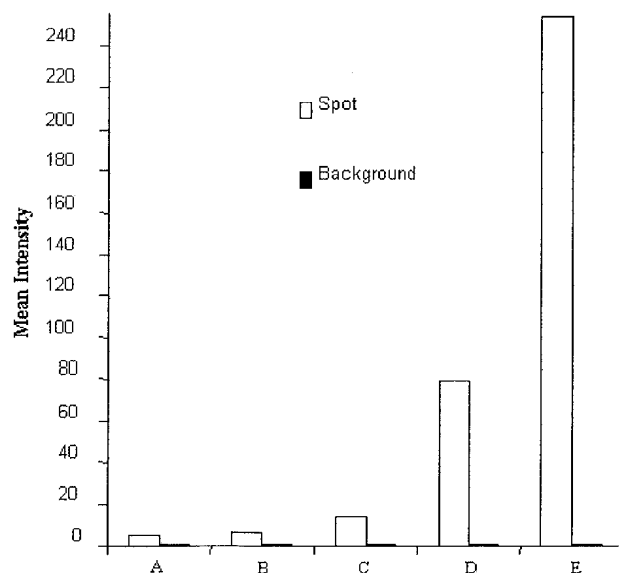
FIG. 8a**FIG. 8b**

Figure 8a and b. Hybridization of Cy5-labeled *am* DNA probe to increasing concentrations of target DNA. **Figure 8a** Original scanned spots. **Figure 8b** Quantitative analysis of spots shown in **Figure 8a**. A: 20ng of genomic DNA (ORSa); B: 0.01ng *am* in 20ng ORSa; C: 0.1ng *am* in 20ng ORSa; D: 1ng *am* in 20ng ORSa; E: 20ng *am* DNA

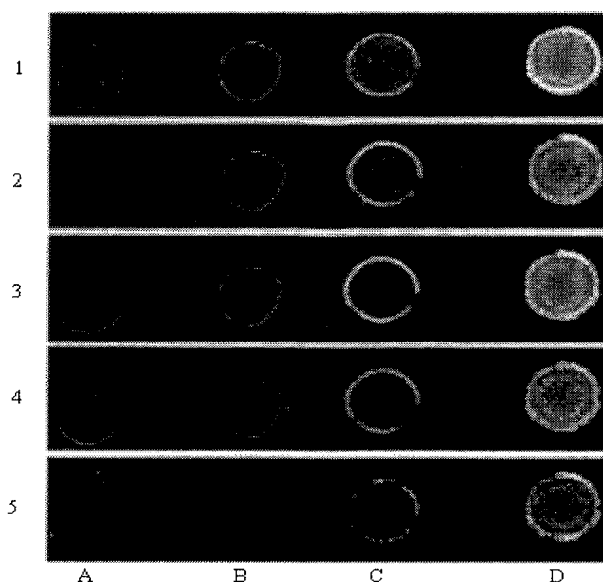
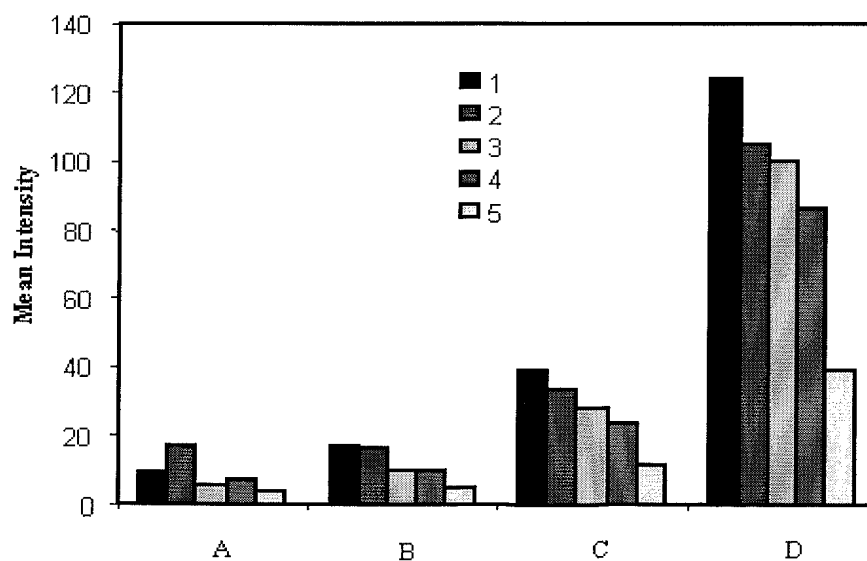
FIG. 9a**FIG. 9b**

Figure 9a and b. Effect of stripping on re-hybridization of Cy5-labeled *am* probe to varying amounts of target DNA immobilized on ATMS/diazotiazied surface. **Figure 9a.** Scanned spots over hybridizations 1 – 5 (where 1 is the initial hybridization, and 2-5 are sequential hybridizations after repeated stripping). **Figure 9b.** Quantitative analysis of spots shown in **Figure 9a**. A: 20ng ORSa DNA; B: 0.01ng *am* in 20ng ORSa; C: 0.1ng *am* in 20ng ORSa; D: 1ng *am* in 20ng ORSa .

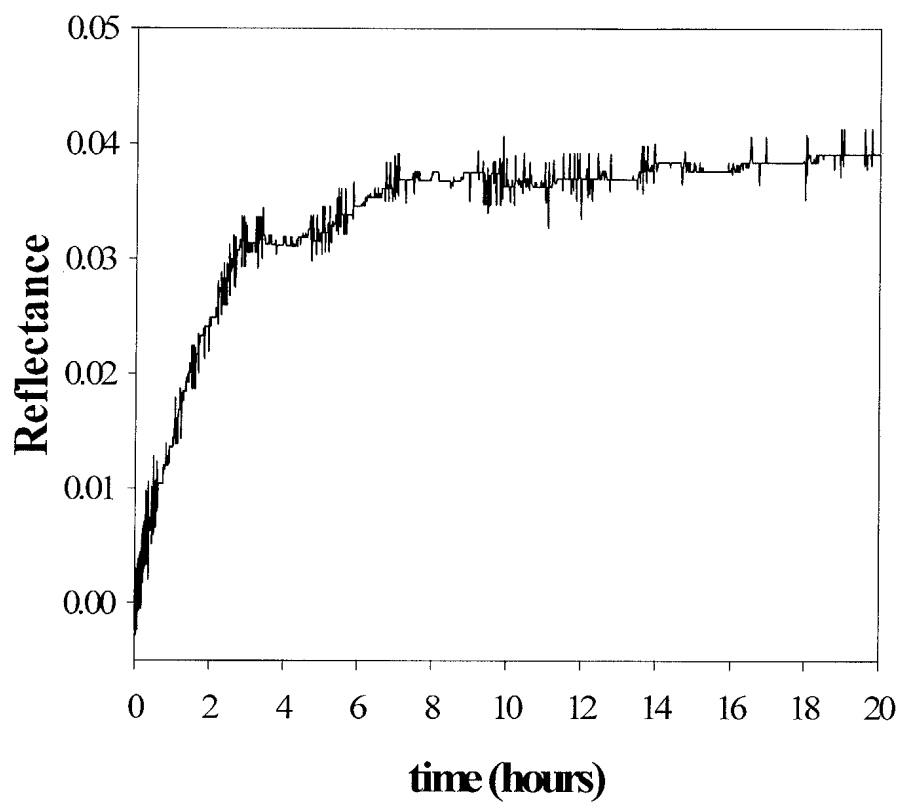
Fig. 10

Figure 10. SPR data for hybridization of single-stranded *am* DNA probe with single-stranded *am* DNA immobilized on a diazotized aminothiophene modified gold surface. Insert shows details of reflectance immediately before and after the probe was added.